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ABSTRACT

This report examines how periods of poverty affect children's educational attainment. Educational attainment is measured by whether a student is at or behind the modal grade level expected for each given age. A cross-tabular analysis was performed on a sample of 16-, 17- and 18-year-old children who were in high school at some point during the 1978 to 1983 period using data from the Panel Survey of Income Dynamics (PSID) longitudinal surveys. The report cautions users that the PSID data are limited for educational research. The findings are the following: (1) for all students, short-term poverty is not expected to affect educational attainment; (2) for all students, longer periods in poverty increase the probability of lagging behind modal grade level; and (3) for white students, there is a statistically significant connection between the amount of time spent in poverty and the lag in modal grade level that is not present for black students. A series of regression analyses support the finding that years in poverty is related to educational attainment for all students and for whites, but not statistically related for blacks. The analyses also indicate a relationship between educational attainment and the following social and family factors: (1) parents' education; (2) mother's attendance at PTA meetings; (3) age of the mother at the child's birth; and (4) whether the mother was divorced or separated. Five statistical tables are included. (FMW)

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The Effects of Short-Term and Long-Term Poverty on Educational Attainment of Children

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A. Introduction and Summary

The goal of this task is to examine how short-term, long-term and intermittent spells in poverty affect children's educational attainment. The measure of educational output or attainment used in this study is whether a student is at or behind the modal grade level expected for each given age. Results show that for the sample population of high school students, past family poverty spells lasting more than two or three years are associated with significantly lower levels of educational attainment than for those experiencing short, intermittent periods in poverty or no poverty at all.

The analysis was performed using data from the Panel Survey of Income Dynamics (PSID) longitudinal surveys. These data are limited for educational analyses of children, as will be discussed below. We caution the user to note these data limitations. The analysis is based on a sample of 16, 17 and 18 year old children who were in high school at some point during the 1978 to 1983 period, and for whom there were no missing data. We suspect that many of those who had dropped out of school prior to age 16 or who were not traceable by the interviewers comprise many of the missing cases. In addition, many children were not in the original sample families, but were included in more recent surveys as the result of their parent's remarriage into a sampled family. We could not trace their history in poverty, and thus, we did not include these students in our analysis.

Nonetheless, the percentage of students performing below their expected grade level does increase as the number of years they spent in poverty increases. Other data, in addition, suggest that the impacts of years in poverty on educational attainment similar to the trends for the entire population also hold for both white and black cohorts individually, although the trends for blacks are not shown to be statistically significant in this sample.

Small sample sizes, however, limit the usefulness of the data for more detailed cross-tabular analysis of educational attainment by other family characteristics, such as mother's education, the incidence of divorce, or the head of the household's unemployment. We attempted to alleviate this data limitation by subjecting the data to a series of regression analyses using ordinary least squares methods. Results from these regressions show results similar to the cross-tabular analyses; that is, years in poverty is related to educational attainment for all students and for whites, but not statistically related for blacks. It should be noted that this result for blacks is not a function of the sample size, which is larger for blacks than for whites. In addition, social and family factors, such as parent's education, whether a mother attended PTA meetings, the age of the mother when her children were born and whether the mother was divorced or separated are all seen to be related to children's educational attainment.

B. Organization of the Task

Our objective was to use the Panel Survey of Income Dynamics (PSID) longitudinal data set to study the extent to which educational attainment might be affected by the length of time spent in childhood poverty. Other ideas were to see how movements into and out of poverty affected a child's grade attainment, how changes in life events that led to the spells of poverty might have differentially affected their performance in school, and how variations in the age that the child's poverty began might have affected educational attainment.

There are advantages and disadvantages to using the PSID for an analysis of this type. The PSID data follows families through a 16 year period, from 1968 to 1983. The sample contains information on over 6,000 families through the period, and includes a measure of family poverty for each of the 16 years. This poverty measure, as discussed below, is similar to the Orshansky poverty index, although not identical to it. Consistent information over this relatively long time span makes the PSID data set potentially well suited for the study of long-term and intermittent spells of poverty.

In addition, the PSID data set, by following the same families over a long period of time, allows a detailed look at how changes in life's circumstances leading to poverty are translated into lower or higher levels of educational attainment. We initially wanted to study, for example, issues such as the impact of a two year spell of unemployment for a family head on the family's probable resultant period in poverty and then on their children's grade attained.

There are, however, a number of obstacles posed by the data that hampered the scope of our anticipated analysis. The fundamental problem is that the PSID data set was created primarily to follow labor market behavior over time. Education analysis was not a concern, other than to the degree that education influences lifetime earnings or occupational choice. The education variables in the data set were primarily focused on the individual's final level of education achieved. This concern with ultimate education attainment is consistent with analysis of the impacts of education on earnings; it does not, however, facilitate study of the impacts of poverty on education.

The specific problems with the education related data are twofold. First, the ultimate level of educational attainment was obtained for all adults in the survey only twice, in 1968 and 1976. The individual's highest grade attained was not updated unless the individual later formed a new, separate household. A more relevant shortcoming of the data, which seriously hindered the study of children's educational attainment, is the survey's failure to record a child's grade completed before age 16. Further, before 1979, the data only reported the last grade completed for individuals over the age of 16 when the grade was the terminal grade obtained, i.e., at the completion of school.

These data idiosyncracies effectively limited our analysis in several ways. We could only study the educational level attained by children aged 16 and over. The idea of following children through periods of poverty, and examining the impact of such poverty on their concurrent levels of schooling was not possible. Nor was an examination of the differential impacts on education levels by the causes of the poverty spells. In addition, our hope of determining at exactly what grade and age past spells in poverty were likely to impact on educational attainment was not achievable.

Because information on the year-to-year changes in one's last grade completed was only updated each year from 1979, we were effectively limited to a series of 16 to 18 year old child cohorts between the years of 1978 to 1983. While this limitation provided a sufficient number of observations for analysis across all students, it enables information of only limited utility when conducting analysis for many subgroups of the student population.

There is one potential way around these data limitations, but it is beyond the scope of this phase of the study. The PSID data carefully documents splitoff families--that is, families formed when children leave their parents' homes and form new ones of their own. When such splitoffs occur, the new heads' last grade completed were obtained. Thus, one might be able to correlate, for instance, educational attainment and poverty for all 21 to 29 year old heads dating as far back as when they were five years old. These results might allow us to determine whether poverty delayed the completion of schooling, encouraged the pursuit of Graduate Equivalent Degrees (GEDS), or otherwise influenced ultimate educational outcomes. Such a study, however, loses the focus on the educational attainment of children, as opposed to adults, which we were striving for here.

C. Definition of Age-Grade Relationships and Poverty

One comparison supported by the data involved comparing students' performance in school, as measured by the grade they are in, to the grade attained by most similarly aged children. This modal grade completed was calculated to be grade 10 for the year children turned age 16, 11 for 17 year olds, and 12 (high school graduate) for those 18 years old. Cross-tabulations between deviations from this modal grade and students' actual grade achieved by years in poverty provide indications of poverty's impact on educational attainment.

The age-grade relationship was calculated from data on the PSID survey in the following manner. First, we determined the students' age by the end of a given survey year based on his year of birth. Then, from the "last grade completed" question, we determined the students' grade achieved in that year. In cases when the survey interview took place in months before the end of the school year (May or June), we used the grade completed from the following year's interview when that interview also occurred before the end of the school year (which it frequently did). By cross checking the interview month in each year, we thus further ensured that the grade completed associated with each student was actually representative of the student's true grade level.

The poverty index used for this analysis is consistent with the official government poverty ratio, although not identical to it. The ratio of total family money income to their basic income need was obtained directly from the PSID data set. The basis for the PSID poverty needs measure is the USDA's low cost food budget determined by the student's family composition and size. We reduced this budget by 20 percent to approximate the government's Economy Food Plan and inflated it using the Consumer Price Index as obtained from the Statistical Abstract of the United States. This procedure, according to PSID documentation, results in a poverty ratio closely corresponding to the official poverty index. An index value of 1.0 or more indicated that the family was not poor.

Poverty is officially defined by the government as occurring when families fall below a poverty index value of 1.0. However, those with incomes above this cutoff level may also be called poor, especially in high cost regions in the country. In order to observe the educational attainment for children whose families border on being poor for much of their lives, but do not actually fall below the official poverty measure, we also alternatively defined as poor those whose poverty index falls below a value of 1.5. In addition, the PSID data have been shown to find more household income than Census surveys do (Bane and Ellwood, 1983, p. 10). Using an alternative poverty cutoff index of 1.5 allows one to compensate for these differences in observed incomes.

Finally, it should be pointed out here that we use the term "educational attainment" here to mean educational performance as indicated by whether a student did or did not achieve his expected modal grade level in school. This modal grade measure of educational performance is the only usable indicator that can be derived from the PSID data.

D. Tabular Results

Table 1 below shows the percentage of all students who had not attained the expected or modal 12th grade level in school when they were 18 years old. These results encompass all 18 year olds in each year from 1978 through 1983 for whom complete PSID data were obtainable. Table 2 compares the percentages shown in Table 1 for the 18 year old cohort with those for the 16 year old cohort. Since our sample encompassed all 16 to 18 year olds over the five year period, many of the same students were included in both the 16 and 18 year old cohorts, although there were some students in only one of the cohorts. Thus, the two samples making up Tables 1 and 2 are not independent and contrasting the results from each table should be undertaken with care. It should also be noted here that we analyzed the educational attainment of the 16 and 18 year old cohorts in this study, omitting the 17 year old cohort, because potential changes in educational attainment as a child gets older will be greatest between these ages. The 17 year old cohort, however, is available for analysis if desired.

TABLE 1

Percent of 18 Year Olds Below Modal Grade (12th) By Years in Poverty and Unweighted Number of Observations

Years in Poverty	All		White		Black	
	Percent Under Mode	Unweighted Sample Size	Percent Under Mode	Unweighted Sample Size	Percent Under Mode	Unweighted Sample Size
Poverty Defined As Being Below The Threshold (1.0 ratio)						
0-2	27.2	806	26.5	530	31.9	243
3-7	48.4	265	42.8	47	48.5	194
8+	57.2	309	85.7	16	50.9	283
Total Sample[a]		1,380		593		720
0-3	28.2	860	26.8	541	35.5	282
4-9	48.7	263	45.7	41	48.0	201
10+	54.7	257	88.7	11	49.1	237
Total Sample[a]		1,380		593		720
Poverty Defined As Below 150 Percent of The Threshold (1.5 ratio)						
0-2	24.8	574	24.6	434	30.2	122
3-7	33.8	247	28.9	93	41.9	134
8+	54.4	559	60.4	66	47.7	464
Total Sample[a]		1,380		593		720
0-3	25.8	630	25.5	461	32.1	144
4-9	40.3	259	33.6	81	44.8	163
10+	51.1	491	55.2	51	47.1	413
Total Sample[a]		1,380		593		720

[a] Total sample includes as small number of Asians and other races not shown in the White-Black comparison. Not all percetages are significantly different from each other. For all children, percentages for the first and last poverty groups are significantly different at the 95 percent confidence interval. This also holds for all 18 year old whites with 0-2 and 8+ years in poverty. For other groups, these data show no differnces.

TABLE 2

Comparison of Percent of 16 and 18 Year Olds Below Modal Grades (10th and 12th) By Years in Poverty [a]

Years in Poverty	All		White		Black	
	16 Year Olds	18 Year Olds	16 Year Olds	18 Year Olds	16 Year Olds	18 Year Olds
Poverty Defined As Below The Threshold (1.0 ratio)						
0-2	21.4	27.2	21.7	26.5	16.5	31.9
3-7	27.7	48.4	26.0	42.8	24.7	48.5
8+	42.2	57.2	48.3	85.7	35.7	50.9
0-3	21.5	28.2	21.8	26.8	16.5	35.5
4-9	33.1	48.7	32.0	45.7	29.7	48.0
10+	39.4	54.7	39.1	88.7	34.9	49.1
Poverty Defined As Below 150 Percent of The Threshold (1.5 ratio)						
0-2	20.3	24.8	20.3	24.6	18.4	30.2
3-7	22.2	33.8	23.1	28.9	17.3	41.9
8+	35.2	54.4	35.9	60.4	30.2	47.7
0-3	20.7	25.8	20.9	25.5	17.3	32.1
4-9	24.8	40.3	25.8	33.6	14.0	44.8
10+	35.0	51.1	33.0	55.2	33.8	47.1

[a] Not all percetages are significantly different from each other. For all children, percentages for the first and last poverty groups are significantly different at age 16 and 18 at the 95 percent confidence interval. This also holds for all 18 year old whites and for 16 year old whites with 0-2 and 8+ years in poverty. For other groups, these data show no differences.

The results from these tabulations show that:

- For all students, there is little difference in ultimate educational attainment as measured by grade completed for those with no or a few years in poverty. Very short term poverty is not expected to retard educational attainment. This result holds across all racial and ethnic groups, and at both the 1.0 and 1.5 poverty cutoff ratios. (Because of this relationship, we combined the results for those with 0 and 1 or 2 years in poverty. They are shown separately in Table 3, however, for information purposes.)

- Longer periods in poverty increase the probability of lagging behind one's modal grade level for all students. Depending upon how the number of years in poverty are grouped, periods in excess of 7 or more years in poverty hamper educational advancement to a larger degree than do short periods and, in some cases, intermediate periods in poverty.

- With regard to ethnic group differences, for white students there was a statistically significant increase in the percent of youth performing under the mode as one went from the lowest to the highest number of years in poverty. This result did not hold for black students, for whom no significant relationship between poverty and educational attainment could be shown within the constraint of the PSID data. Because sample sizes were small in many cases (including those for whites), however, there was little precision in the estimated percentages of poor children behind their modal grade level by ethnic group. Because the combined racial groups did provide statistically significant results, though, there is an indication that larger sample sizes may produce significant results in this direction for each ethnic group.

- When we tabulated the cohort of 16 year olds across the 1978 to 1983 period, the results were substantially similar to that for the 18 year old cohort. This result is not surprising, since many of these 16 year olds were included as part of our 18 year old cohort two years later. Table 2 below compares the percentages of our PSID cases performing below their expected grade levels at ages 16 and 18. As for the 18 year old group, the total sample of 16 year olds showed a statistically significant decline in educational attainment as one moved from the lowest to highest poverty groups. Note that the percentage of those below the modal grade level is lower in all cases for 16 year olds than for 18 year olds. Poverty affects a student's educational attainment increasingly as high school graduation approaches. The older a student becomes, the less likely are the chances of being at one's modal grade level. One can infer that a number of these older students who fall below their modal grade include a number who had dropped out, in addition to those who have lagged behind their classmates. Dropouts increase with age for a variety of reasons. For example, mandatory schooling ages vary by state; these results may indicate that those with longer

Table 3

Example[a] of the Percent of 16 and 18 Year Olds Below Modal Grades (10th and 12th) By Years in Poverty, Including Those Never in Poverty, For Poverty Defined as Below the Threshold (1.0)

Year in Poverty	All		White		Black	
	16 Year Olds	18 Year Olds	16 Year Olds	18 Year Olds	16 Year Olds	18 Year Olds
0	21.8	26.4	22.0	25.4	16.4	34.4
1 - 2	20.0	30.7	20.5	31.3	16.6	27.5
3 - 7	27.7	48.4	26.0	42.8	24.7	48.5
8+	42.2	57.2	48.3	85.7	35.7	50.9
Total, 1-8+	27.5	42.3	25.2	38.7	28.3	45.7
Total, All	23.9	32.0	22.9	28.8	25.2	42.6

[a] Because there was little difference in the percentage of children below their modal grade level for those with 0 and 1-2 years in poverty -- and because the sample size for those in these groups is sometimes small, the groups were combined in Tables 1 and 2. They are shown here, along with the percentages below modal grade levels for those with some poverty (1-8+ years), for illustrative purposes only. Also see note to Tables 1 and 2.

periods in poverty tend to drop out of school in greater relative numbers than do those with fewer years in poverty. In addition, job opportunities may open up for older students, forcing poorer students to reevaluate their educational plans as their potential income from labor market participation increases.

We caution, however, against making further judgements about dropout behavior from these data. The PSID data set yielded disappointing information on the total number of high school dropouts. We were only able to obtain reliable information about dropout behavior for those whose PSID records contained little missing data during the 1978 to 1983 period. These were children who were in school at some point between the ages of 16 and 18. The implications about dropout behavior occurring between the ages of 16 and 18 drawn from Table 2, therefore, can only be interpreted as indicative of this sample, not of aggregate dropout behavior.

Our attempts to derive better dropout information proved fruitless. We tried to determine the total percentage of students who had dropped out of high school by examining sample data which asked respondents if they were in school in the previous year. Much of the PSID data for students who we would have expected to have been dropouts (i.e., those for whom no last grade was shown on the tape) were missing. We had no way of determining whether these missing cases were indeed dropouts, however. Thus, we eliminated these children from the analysis as missing data. The only dropout information we were able to obtain, then, were for those students who remained in the sample. These cases showed that 11 percent of the 18 year old cohort were not in school; however, only half of those were below their expected modal level. We suspect that these students had, at least temporarily, dropped out before completing school. Thus, the user of these data are cautioned to interpret them as relating only to a sample of known high school students who were in school sometime between the ages of 16 and 18, and who could be traced for consecutive interviews. The missing data may produce selectivity biases, affecting the distributions shown in the tables below. We have no evidence as to the nature of this bias, however.

E. Regression Analyses

In the previous section, the simple, bivariate relationship between years in poverty and the chances of being behind the modal grade was examined. In this section, the relationship between poverty's duration and educational attainment is shown while controlling for other variables. In doing so, a series of regression equations are estimated. The regression models are estimated using ordinary least squares (OLS) with a dichotomous dependent variable. In the statistical literature, this is usually referred to as estimating a linear probability model. We present the OLS regression results using the 18 year old cohort. The OLS equation coefficients for all students are shown in Table 4 below, while definitions of the model's variables appear in Figure 1.

TABLE 4

Ordinary Least Squares Regression Models Relating Poverty Duration and Other Variables to the Chances of Being Behind Modal Grade For 18 Year Olds

Independent Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Years in Poverty (1.0)	.0159	.0156			
	(3.20)	(3.39)			
ST (1.0)			-.1013		
			(2.30)		
LT Poverty (1.0)			.1328		
			(2.19)		
Years in Poverty (1.5)				.0158	
				(5.08)	
ST Poverty (1.5)					-.0600
					(1.65)
LT Poverty (1.5)					.1756
					(4.05)
Sex	-.1435	-.1437	-.1442	-.1439	-.1396
	(5.73)	(5.75)	(5.78)	(5.78)	(5.62)
Race	-.006				
	(0.17)				
Momed1	-.0571	-.5070	-.0488	-.0484	-.0374
	(1.85)	(1.85)	(1.57)	(1.55)	(1.20)
South	.0352	.0342	.0309	.0406	.0432
	(1.12)	(1.11)	(1.00)	(1.33)	(1.43)
Ptametg	-.0957	-.0961	-.0931	-.0914	-.0820
	(2.22)	(2.24)	(2.17)	(2.13)	(1.91)
Momagbth	.0441	.0439	.0452	.0446	.0408
	(1.18)	(1.18)	(1.21)	(1.20)	(1.10)
Singlmom	.0511	.0505	.0490	.0555	.0505
	(1.52)	(1.52)	(1.48)	(1.70)	(1.54)
Avinc	-3.63E-06	-3.62E-06	-3.31E-06		
	(2.03)	(2.03)	(1.88)		
Intercept	.5242	.5243	.6109	.4254	.4661
R2	.0805	.0812	.0858	.0838	.0909

Absolute t-values in parentheses.
Sample size=1380.

FIGURE 1

Variables Used in the Regression Equations

DEPENDENT VARIABLE	
Modal Grade Attainment	Set equal to 1 if below mode, 0 if at or above mode.
INDEPENDENT VARIABLES	
Years in Poverty (1.0)	Number of years in poverty, poverty ratio=1.0
ST Poverty (1.0)	Dummy variable set=1 if poor 0-2 years, poverty ratio=1.0
LT Poverty (1.0)	Dummy variable set=1 if poor 8+ years, poverty ratio=1.0
Years in Poverty (1.5)	Number of years in poverty, poverty ratio=1.5
ST Poverty (1.5)	Dummy variable set=1 if poor 0-2 years, poverty ratio=1.5
LT Poverty (1.5)	Dummy variable set=1 if poor 8+ years, poverty ratio=1.5
Sex	Dummy variable set=1 if female, 0=male
Race	Dummy variable set=1 if black, 0=other
Ptamtg	Dummy variable set=1 if 1 if parent ever attended PTA meeting when child very young
Momagbth	Dummy variable set=1 if mother was less than 20 at birth of first child
Singlmom	Dummy variable set=1 if mother was ever single during childhood years
Momedl	Dummy variable set=1 if mother has high school degree or higher educational level
Regionl	Dummy variable set=1 if live in South
Aveinc	Average yearly family income over period

The advantage of analyzing the data in this way is that it allows one to better isolate the impact of poverty on educational attainment, while statistically holding all other relevant factors constant. OLS in a linear probability model framework provides estimates of the magnitude and direction of the direct effects of each independent variable on the probability of being behind the modal grade.

There are, however, well known problems with using an OLS approach to estimate models with discrete dependent variables. These problems are discussed, for example, in Hanushek and Jackson (1977). There is a chance that the error term in the model is related to the independent variables, leading to hetroskedasticity. In addition, there is no guarantee that the functional form will result in predicted values of the dependent variable falling within the 0 to 1 range. An error might also be introduced because the true probability that is desired is only being estimated by a 0 or 1 dependent variable, not by the probability itself. In order to address these problems, we also estimated models identical to the OLS models presented here using a logit alogrithm. The results of this logit test proved consistent with those obtained using the OLS regression method. The signs and levels of significance for all of the explanatory variables remained stable, increasing confidence in the rationale for the inclusion and interpretation of these variables. The logit results are available upon request.

The dependent variable in all the regressions is a dichotomous variable indicating whether a student is at or below this expected modal grade level (below modal grade=1 and at or above modal grade=0). The independent variables are also shown in Table 4. These independent variables were selected to represent a range of economic, social and attitudinal factors thought to affect educational attainment. By including these factors in the regression, one is better able to isolate the impacts of poverty on educational attainment while holding constant other events that might also affect such attainment.

The interpretation of these variables' coefficient is as follows: a positive sign indicates that the chances of being behind one's modal grade level increases for every unit increase in the value of the independent variable; a negative sign means that the probability of falling below one's modal grade level decreases with an increase in that variable. For example, equation 1 shows that for each additional year a student spends in poverty, the probability that the student will be below the modal grade in school is expected to increase by .0159 (the coefficient of the years in poverty variable is +.0159). The coefficient for youth's gender (-.1435) shows that females (gender=1) have a probability of being behind their modal grade that is .1435 less than similar males (gender=0).

Poverty was specified both as an individual's actual years in poverty, and as a dummy variable representing no or short periods in poverty (ST poverty) or long term poverty spells (LT poverty). Equations were tested for poverty cutoffs of 1.0 and 1.5, for reasons described above. In all specifications of the model, the sign for poverty's coefficient is positive, whether poverty is measured by the absolute number of years in poverty or was short or long term. That is to say, as one's years in

poverty increase, the probability rises that he will fall below the modal grade for his age. These coefficients, in addition, are statistically significant at the 99 percent confidence level.

The estimates for poverty show, more specifically, that even after holding constant a number of other variables thought to affect educational attainment, every additional year in poverty increases the probability of being behind the modal grade by .0159. Thus, one can contrast two students similar in all characteristics except for the number of years in poverty. If one student is in poverty for five years and the other never in poverty, the result sows that the student in poverty would have a probability of being behind the modal grade that is approximately .08 greater than the student never in poverty. Models 3 and 5 present results where years in poverty are grouped by short (0-2) and long (8+) spells. The coefficient of these dummy variables in equation 3, for example, indicate that short periods in poverty would reduce the probability of being behind the modal grade by .1013, while long periods in poverty would increase this probability by .1328.

As can be seen in equation 1, race is not significantly related to educational attainment, nor is it related in any other equation where it was included. One possible explanation for this result is that once social and family factors thought to affect educational attainment are held constant, as they are in these regressions, race has no impact on educational output. That is, the effect of race on educational attainment operates through a number of variables in the equation. For example, since blacks tend to have lower incomes than whites, the influence of race on educational attainment operates through the income variable in this model--assuming income influences attainment. To test this explanation, we entered race into the equations as a first step in a stepwise set of specifications. In doing so, we observed that race had a positive and significant sign--indicating that black students have an increased chance of being below their modal grade level if socioeconomic circumstances are not controlled. As other controlling factors were entered into the regressions, the statistical relationship disappeared.

The literature points to many other factors that might influence educational attainment. We were limited in the variables we could use in this study by the scope of the PSID data; however, we were able to construct a variety of variables that reflect the range of factors thought to affect educational attainment. These are shown in Figure 1. One interesting result involved a question which asked parents if they ever attended a PTA meeting while their child was very young (Ptamtg). We took this as a measure of the degree that parents were involved with their children's education. A consistently significant negative sign shows that when a parent did attend a PTA meeting, the probability that their children would fall below the mode at age 18 decreased. Alternatively, students who had parents who never attended a PTA meeting had a predicted probability of being behind their modal grade level that is more than .09 greater than the probability of a similar youth whose parents did attend PTA meetings.

Other characteristics of the child's parents were also included. In most specifications, mothers who had a high school degree or more (momed) had children who were less likely to fall behind their expected grade level. Similar findings were seen if father's education was included in the equations in place of mother's education (not shown, available upon request). Some of the t-values for parent's education indicate a significance at approximately the 90 percent level--lower than optimal, but still indicative that the characteristic may influence the outcome. Slightly less significant (with a level of significance below 90 percent), but included as controlling variables, were whether a child's mother ever raised the child alone due to divorce or separation (singlmom), and the mother's age when their first child was born (momagbth). Both young mothers and those who were single at some point in their child rearing years had children with increased probabilities of being behind in school. Other studies have found that the number of young children present in a household affected educational outcomes; we could find not such relationship.

Other specifications looked at average annual family income (avinc); as it increased, there was a lower chance for such families' children being behind their modal grade. Because average family income was highly correlated with our poverty measures, and because the coefficient was very close to zero (annual income was included in the equation in actual dollars), average income was omitted from many specifications (see equations 4 and 5, for example). Omitting the variable did not alter the other results.

To determine if the relationships between the independent variables, particularly duration of poverty, and the chances of being behind modal grade were the same for whites and blacks, we estimated separate models for these subsamples. The results from these specifications confirmed the findings from the crosstabs. An identical specification is shown for all students, and for whites and blacks alone in Table 5; this specification indicates that different structural processes may affect educational attainment in the two groups. A greater number of years in poverty significantly increased the chances being behind one's modal grade for whites, but not for blacks. In addition, the regressions on these white and black cohorts indicate that mothers' education did not affect the educational attainment for whites, but did tend to be related to improved educational attainment measured for blacks, although the t-values are quite small, indicating a very low level of confidence in the coefficients. Being raised by a single mother increased the chances of black children falling behind the mode, but did not affect white achievement. Living in the Southern region loses significance for whites, but weighs heavily for blacks. A mother attending a PTA meeting improved white children's chances of advancing in school, while it did not influence blacks' attainment. Finally, children of younger mothers did poorer in school than children of older mothers for whites, while mother's age had no impact for blacks.

TABLE 5

Ordinary Least Squares Regression Models Relating Poverty Duration and Other Variables to the Chances of Being Behind Modal Grade For 18 Year Olds, By Ethnic Group

Independent Variable	All Children N=1380*	White N=593	Black N=720
Years in Poverty (1.0)	.0188	.0346	6.51E-3
	(4.36)	(4.65)	(0.85)
Sex	-.1480	-.1142	-.2113
	(5.94)	(4.13)	(3.08)
Momed1	-.0699	-.0306	-.0889
	(2.31)	(0.89)	(1.07)
South	.0431	8.85E-3	.1216
	(1.41)	(0.25)	(1.61)
Ptametg	-.1013	-.1425	-.0606
	(2.36)	(2.79)	(0.55)
Momagbth	.0493	.0821	.0568
	(1.32)	(1.87)	(0.62)
Singlmom	.0638	.0261	.1205
	(1.95)	(0.67)	(1.62)
Intercept	.4686	.4527	.4754
R2	.0790	.0602	.0710

Absolute t-values in parentheses.

* Total sample includes as small number of Asians and other races not shown in the White-Black comparison.